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Serial No. 10/780,248

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Remarks

Claims 1-31 were pending in the application. Claims 32-35 have been added. Therefore, claims 1-35 are pending in the application.

Claims 1-6, 14, 17, 27-29 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent Number 6,606,427 issued Graves et al. on August 12, 2003.

Claims 7-13, 15, 16 18-26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graves et al. in combination various other references.

Rejection Under 35 U.S.C. 102

Claims 1-6, 14, 17, 27-29 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent Number 6,606,427 issued Graves et al. on August 12, 2003. The Office Action states that Graves et al. teaches all of the elements of applicants' independent claims 1 and 31. Applicants respectfully disagree and traverse this ground of rejection for at least the following reasons.

The Office Action points to demultiplexer 16 or multiplexer 20 of Graves et al. as being applicants' recited at least one wavelength sieve/combiner that operates on discrete wavelength units. However, such a demultiplexer or multiplexer is not the same as applicants' recited element. A demultiplexer, such as demultiplexer 16 of Graves' et al., can only separate the various wavelengths into discrete, separate wavelength bands where the bandwidth of each resulting channel is the same. The reverse is true for a multiplexer, such as multiplexer 20, which can only combine various discrete, separate wavelength bands where the bandwidth of each wavelength band is the same. By contrast, applicants' claimed wavelength sieve/combiner can split a wavelength division multiplexed (WDM) beam into various discrete wavelength unit beams each of which contains prescribed wavelength channels, or it can cause multiple copies of part or all of the wavelengths to be supplied as outputs. Furthermore, each wavelength sieve/combiner may also function in the opposite direction to combine such various beams into one wavelength division multiplexed beam.

Note that because the wavelength sieve/combiner can split a wavelength division multiplexed (WDM) beam into various discrete wavelength unit beams each of which

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contains prescribed wavelength channels, unlike the conventional multiplexers or demultiplexers of Graves et al., the channels need not all have the same wavelength band. Certainly if all the channels simply all have the same wavelength band, and there aren't any multiple copies of part or all of the wavelengths to be supplied as outputs, or vice-versa when used to combine, then simply all that remains is a conventional demultiplexer or multiplexer. However, this is not what applicants' claim language calls for, given that it recites an wavelength sieve/combiner which is defined in applicants' specification.

Therefore, Graves et al. does not teach applicants' recited sieve/combiner, and so applicants' independent claims 1 and 31 are allowable over Graves et al. under 35 U.S.C. 102. Since all of the dependent claims that depend from the currently amended independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Graves et al. under 35 U.S.C. 102.

Rejection Under 35 U.S.C. 103(a)

Claims 7-13, 15, 16 18-26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graves et al. in combination various other references. Each of these grounds of rejection applies only to dependent claims, and each is predicated on the validity of the rejection under 35 U.S.C. 102 given Graves et al. Since the rejection under 35 U.S.C. 102 given Graves et al. has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that any of the other cited references supplies that which is missing from Graves et al. to render the independent claims anticipated, these grounds of rejection cannot be maintained.

Therefore, applicants' claims are allowable over Graves et al. under 35 U.S.C. 103.

New Claims

New claims 32-35 have been added to better define applicants' invention. No new matter has been added. Claims 32-35 require that there be a free space optical path between the sieve/combiner and the array of micro mirrors. New claims 32-35 are allowable even if the demultiplexer of Graves et al. is considered to be applicants' sieve combiner—a proposition with which applicants, for the reasons given hereinabove, do

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not agree—because in Graves et al. the path between the alleged sieve/combiner and the array of micro mirrors is not a free space only path, but rather is fiber-optic-based path. Note that using a free space only path provides significant advantages that cannot be achieved with a fiber-based system, namely, a considerable reduction in both size and cost of the system. This is because the need to route the fibers for each of the channels in a fiber-based system would consume considerable space and the cost of the necessary connectors, as well as the fiber, along with the extra labor cost to install them, are not insubstantial. Applicants' free space arrangement avoids all of these items, as well as achieving a considerable reduction in complexity, which is likely to improve reliability.

Note too that applicants' invention cannot be derived by simply removing the fibers from the arrangement of Graves et al., because of the non-trivial considerations of geometry and light propagation. These problems are overcome in applicants' invention by the multidimensional nature of applicants' sieve/combiner.

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Conclusion


It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, he is invited to call applicant's attorney so that arrangements may be made to discuss and resolve any such issues.

In the event that an extension of time is required for this amendment to be considered timely, and a petition therefor does not otherwise accompany this amendment, any necessary extension of time is hereby petitioned for, and the Commissioner is authorized to charge the appropriate cost of such petition to the Lucent Technologies Deposit Account No. 12-2325.

Respectfully,

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